SAT Report for Case # L-13-0727

General

[redacted]

Report Status: Complete **Status Date:** 10/21/2013

CRSS Date: 10/21/2013 **SAT Date:** 10/22/2013 **SAT Chair:** [redacted]

Consolidated PMN?

Consolidated Set:

Submitter: [redacted]

CAS Number: 1072-53-3

Ecotox Related Cases: [redacted]

Health Related Cases: [redacted]

Chemical Name: 1,3,2-Dioxathiolane, 2,2-dioxide

Use: [redacted]

Trade name: [redacted]

PV Max (kg/yr):

Ecotox Assessor: **Fate Assessor:** **Health Assessor:**

Physical Chemical Information

Molecular Weight:	[redacted]	**Physical State - Neat:**	[redacted]		
Percent 500:		**Percent 1000:**			
Melting Point (Measured):	[redacted]	**Melting Point (est):**		**MPD (EPI):**	
Vapor Pressure:		**Vapor Pressure (est):**	0.04	**VP (EPI):**	
Water Solubility:		**Water Solubility (EST):**	382	**Water Solubility (EPI):**	
Log Kow:				**Log Kow (EPI):**	
Log P:		**Log P Comment:**			

SAT Concern

Ecotox Rating (1):	1	**Ecotox Rating Comment (1):**	
Ecotox Rating (2):		**Ecotox Rating Comment (2):**	
Health Rating (1):	2	**Health Rating Comment (1):**	
Health Rating (2):		**Health Rating Comment (2):**	

PBT Ratings

Persistence	Bioaccumulation	Toxicity	Comments
2	1	2	

Exposure Based Review (Health)?	N
Exposure Based Review (Ecotox)?	N
SAT Keywords:	

Fate Assessment Summary:	L-13-0727 FATE: [redacted] log Kow = -0.90 (E) S > 10 g/L at 25 C (E) VP = 4.4E-2 torr at 25 C (E) BP = 209 C (E) H = 1.15E-6 (E) log Koc = 0.97 (E) log Fish BCF = 0.50 (E) log Fish BAF = -0.05 (E) POTW removal (%) = 0-25 Time for complete ultimate aerobic biodeg = wk Sorption to soils/sediments = low Volatilization half-life from a standard river = 570 hrs Volatilization half-life from a standard lake = 260 da Atmospheric Oxidation Half-life = 120 hr via OH radical PBT Potential: P2B1 *CEB FATE: Migration to ground water = rapid
Removal in WWT/POTW (Overall):	0-25

Condition	Rating Values w/ Rating Description	Comment
WWT/POTW Sorption:	1	

Condition	Rating Values w/ Rating Description	Comment
WWT/POTW Stripping:	3-4	
Biodegradation Removal:		
Biodegradation Destruction:		
Aerobic Biodeg Ult:	2	
Aerobic Biodeg Prim:	1-2	
Anaerobic Biodeg Ult:	2-3	
Anaerobic Biodeg Prim:		
Hydrolysis (t1/2 at pH 7,25C) A:		
Hydrolysis (t1/2 at pH 7,25C) B:		
Sorption to Soils/Sediments:	4	
Migration to Ground Water:	4	
Photolysis A, Direct:		
Photolysis B, Indirect:		
Atmospheric Ox A, OH:		
Atmospheric Ox B, O3:		

Health Assessment

Health Summary: Absorption is nil through the skin for the neat material, moderate through the skin for the material in solution, and moderate through the lung and GI tract, based on physical/chemical properties. The LVE substance is a potential alkylating agent. There are concerns for severe irritation/possible corrosion to the eye, skin, and lung, dermal sensitization, acute, liver and developmental toxicities, mutagenicity, and oncogenicity, based on the [redacted]

[redacted] and submitted test data.

Routes of Exposure: Dermal Drinking Water
Inhalation

Test Data Submitted

Test Data Submitted: Submitted with [redacted]:

Corrosive to male rabbit eyes, causing irreversible damage: test terminated after one day;
Corrosive to male rabbit skin, causing irreversible damage: test terminated after one day;

Dermal sensitizer in male guinea pigs

Ecotox Assessment

Test organism	Test Type	Test Endpoint	Predicted	Measured	Comments
Fish	96-h	LC50	>100		
Daphnid	48-h	LC50	>100		
Green Algae	96-h	EC50	>100		
Fish	-	Chronic Value	>10		
Daphnid	-	Chronic Value	>10		
Green Algae	-	Chronic Value	>10		

Factors	Most Sensitive Endpoint	Assessment Factor	CoC	Comment
Acute Acquatic:				
Chronic Acquatic:		10	1000	

Ecotox Route of Exposure?	No releases to water

Factors	Values	Comments
SARs:	esters	
SAR Class:	ester	
TSCA NCC Category?	Esters	

Recommended Testing

Ecotox Value Comments

Predictions are based on SARs for esters; SAR chemical class = ester; [redacted]; [redacted] with [redacted] (P); pH7; effective concentrations based on 100% active ingredients and nominal concentrations; hardness <150.0 mg/L as CaCO3; and TOC <2.0 mg/L;

Test data was submmitted for [redacted]

Ecotoxicity Test Data Results
Case Number: [redacted]

Chemical Name: [redacted]

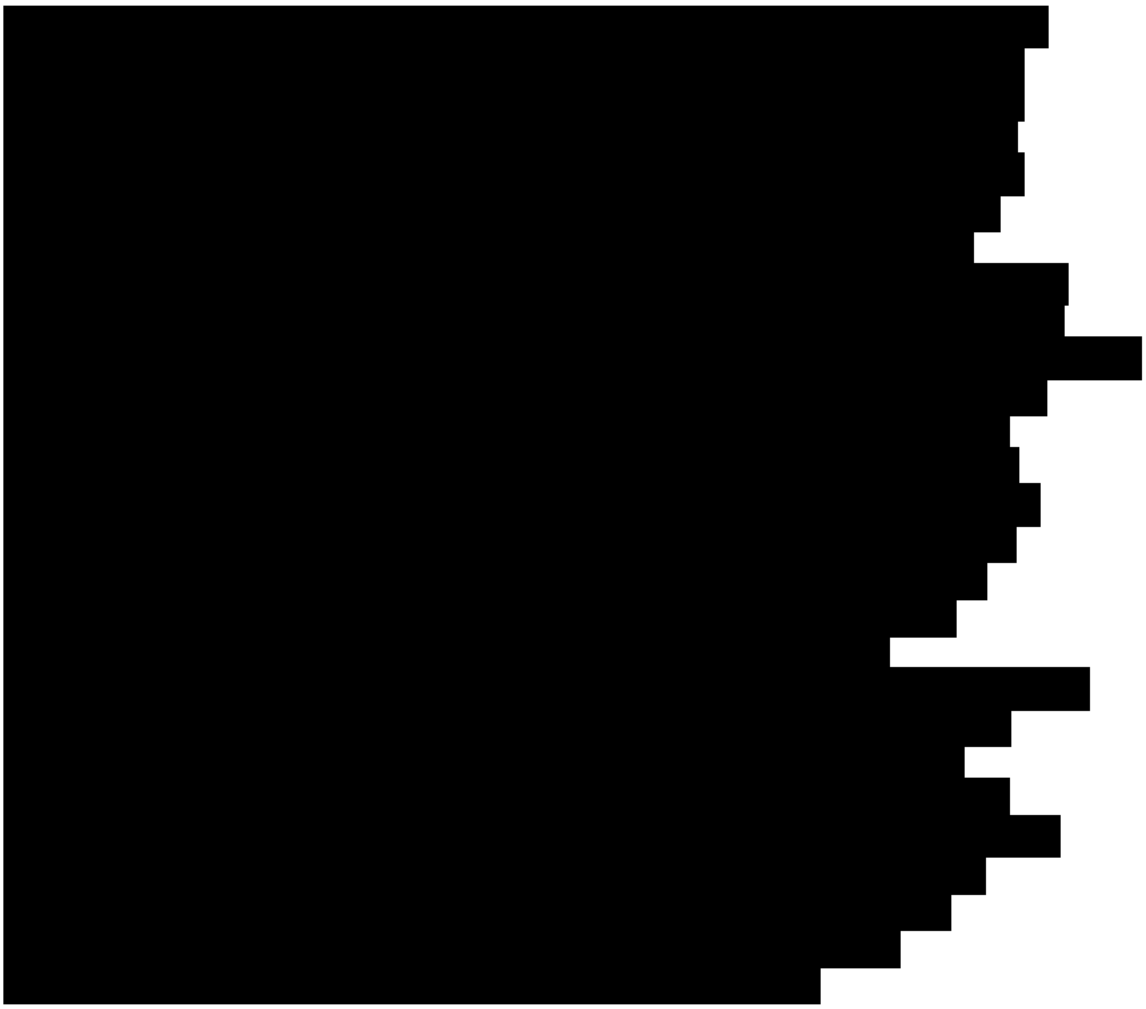
Trade Name: [redacted]
Initial Data Review

Fish Ecotoxicity Test:

[redacted] h.
96-hr LC50 > 15.238 mg/L

Daphnid Ecotoxicity Test:

[redacted]



48-hour EC50 > 12.429 mg/L

Algal Ecotoxicity Test:

72-hour EC50 (yield) > 9.068 mg/L
72-hour LOEC (yield) = 3.41 mg/L

72-hour EC50 (growth rate) > 9.068 mg/L
72-hour NOEC (growth rate) =
4.43 mg/L
72-hour LOEC (growth rate) = 5.59 mg/L
72-hour ChV (growth
rate) = 4.98 mg/L

The acute base-set (aquatic fish, aquatic invertebrate, and aquatic plant) studies are acceptable. However, dose ranges for this test substance is inadequate. Therefore, the predicted values will be used to assess the ecotoxicity of [redacted] Predictions based on SAR analysis for esters are >100 mg/L for the acute fish, daphnia, and green algae endpoints, and >10 mg/L for the chronic fish, daphnia, and green algae endpoints. The acute CoC for [redacted] is determined from the predicted 96-hour LC50 fish toxicity study of >100 mg/L. The acute CoC is derived by dividing the 96-hour green algal LC50 of >100 mg/L (1,000 ppb) by an assessment factor of 5 yielding an acute CoC of 20,000 ppb. The chronic CoC is derived by dividing

the predicted chronic fish toxicity value of 10 mg/L by an uncertainty factor of 10, yielding 10 mg/L or 1,000 ppb.

Acute CoC = 20,000 ppb
Chronic
CoC = 1,000 ppb

Ecotox Study Reviewer: [redacted]

Ecotox Factors Comments